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What is claimed is:

1   1.   A method of controlling the transmit power of a plurality of

2   CDMA downlink channels from a base station within a control range

3   between a nominal lower limit and a nominal upper limit, comprising the

4   steps of:

5   receiving, at said base station, a command signal from a mobile

6   station requesting the base station to decrease the transmit power of a

7   downlink channel; and

8   decreasing, at said base station, said transmit power of said

9   downlink channel if said downlink channel has a quality higher than a

10 specified threshold value at said mobile station.

1   2.   The method of claim 1, further comprising the steps of:

2   receiving, at said base station, a command signal from said mobile

3   station requesting the base station to increase the transmit power of said

4   downlink channel; and

5   increasing said transmit power if total transmit power of said

6   downlink channels is lower than a specified threshold value.

1   3.   A method of controlling the transmit power of a plurality of

2   CDMA downlink channels from a base station within a control range

3   between a nominal lower limit and a nominal upper limit, comprising the

4   steps of:

5   receiving, at said base station, a command signal from said mobile

6   station requesting the base station to increase the transmit power of said

7   downlink channel; and

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8   increasing said transmit power if total transmit power of said

9   downlink channels is lower than a specified threshold value.

1   4.   A method of controlling the transmit power of a plurality of

2   CDMA downlink channels from a base station within a control range

3   between a nominal lower limit and a nominal upper limit, comprising the

4   steps of:

5   a)   receiving, at said base station, a command signal from a

6   mobile station requesting the base station to decrease the transmit power

7   of a downlink channel;

8   b)   decreasing the transmit power of said downlink channel if a

9   hypothetically decremented value of said transmit power is higher than

10   said nominal lower limit;

11   c)   decreasing said transmit power of said downlink channel if

12   said downlink channel has a quality lower than a specified threshold

13   value at said mobile station even when said hypothetically decremented

14   value is lower than said nominal lower limit; and

15   d)   setting said transmit power of said downlink channel equal to

16   said nominal lower limit if said hypothetically decremented value is

17   lower than said nominal lower limit and the quality of said downlink

18   channel is lower than said specified threshold value.

1   5.   The method of claim 4, further comprising the steps of:

2   receiving, at said base station, a command signal from said mobile

3   station requesting the base station to increase the transmit power of said

4   downlink channel;

5   increasing said transmit power of said downlink channel if a

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6　hypothetically incremented value of the transmit power is lower than

7　said nominal upper limit;

8　　　　increasing said transmit power if total transmit power of said

9　downlink channels is lower than a specified threshold value even when

10　said hypothetically incremented value is greater than said nominal upper

11　limit; and

12　　　　setting said transmit power equal to said nominal upper limit if

13　said hypothetically incremented value is greater than said nominal upper

14　limit and said total transmit power is equal to or higher than said

15　specified threshold value.

1　　　6.　The method of claim 4, wherein the step (c) comprises the

2　steps of:

3　　　c_1)　receiving, at said base station, a quality indicating signal from

4　said mobile station indicating a quality of said downlink channel at said

5　mobile station;

6　　　c_2)　determining whether the quality of said downlink channel

7　indicated by said quality indicating signal is higher than said specified

8　threshold value; and

9　　　c_3)　decreasing said transmit power if said quality is higher than

10　said specified threshold value even when said hypothetically

11　decremented value is lower than said nominal lower limit.

1　　　7.　The method of claim 6, wherein said quality indicating signal

2　represents a signal to interference ratio of said downlink channel at said

3　mobile station.

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1   8.   The method of claim 4, wherein the step (b) comprises

2   decrementing said power level by a stepsize value which varies

3   depending on the length of time during which said power level is lower

4   than a predetermined level.

1   9.   The method of claim 4, wherein the step (c) comprises

2   decrementing said power level by a stepsize value which varies

3   depending on the length of time during which said power level is lower

4   than a predetermined level.

1   10.   The method of claim 8, wherein the step (b) comprises the

2   steps of incrementing a count value if said power level is lower than said

3   predetermined level and increasing said stepsize value when the count

4   value reaches a predetermined value.

1   11.   The method of claim 9, wherein the step (c) comprises the

2   steps of incrementing a count value if said power level is lower than said

3   predetermined level and increasing said stepsize value when the count

4   value reaches a predetermined value.

1   12.   A method of controlling the transmit power of a plurality of

2   CDMA downlink channels from a base station within a control range

3   between a nominal lower limit and a nominal upper limit, comprising the

4   steps of:

5   receiving, at said base station, a command signal from a mobile

6   station requesting the base station to decrease the transmit power of a

7   downlink channel;

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8　　　　decreasing the transmit power of said downlink channel if a

9　hypothetically decremented value of said transmit power is higher than

10　said nominal lower limit;

11　　　　incrementing a count value as long as said hypothetically

12　decremented value is lower than said nominal lower limit;

13　　　　setting the transmit power of said downlink channel to said

14　nominal lower limit if said count value is smaller than a predetermined

15　count value; and

16　　　　decreasing the transmit power of said downlink channel if said

17　count value reaches said predetermined count value.

1　　　　13.　The method of claim 12, further comprising the steps of:

2　　　　receiving, at said base station, a command signal from said mobile

3　station requesting the base station to increase the transmit power of said

4　downlink channel;

5　　　　increasing said transmit power of said downlink channel if a

6　hypothetically incremented value of the transmit power is lower than

7　said nominal upper limit;

8　　　　increasing said transmit power if total transmit power of said

9　downlink channels is lower than a specified threshold value even when

10　said hypothetically incremented value is greater than said nominal upper

11　limit; and

12　　　　setting said transmit power equal to said nominal upper limit if

13　said hypothetically incremented value is greater than said nominal upper

14　limit and said total transmit power is equal to or higher than said

15　specified threshold value.

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1   14. A method of controlling the transmit power of a plurality of

2 CDMA downlink channels from a base station within a control range

3 between a nominal lower limit and a nominal upper limit, comprising the

4 steps of:

5   receiving, at said base station, a command signal from said mobile

6 station requesting the base station to increase the transmit power of said

7 downlink channel;

8   increasing said transmit power of said downlink channel if a

9 hypothetically incremented value of the transmit power is lower than

10 said nominal upper limit;

11   increasing said transmit power if total transmit power of said

12 downlink channels is lower than a specified threshold value even when

13 said hypothetically incremented value is greater than said nominal upper

14 limit value; and

15   setting said transmit power equal to said nominal upper limit

16 value if said hypothetically incremented value is greater than said

17 nominal upper limit value and said total transmit power is equal to or

18 higher than said specified threshold value.

1   15. A CDMA communication system comprising:

2   a plurality of mobile stations; and

3   a base station for establishing a plurality of downlink channels to

4 said mobile stations, receiving a power command signal from a mobile

5 station requesting the base station to decrease the transmit power of a

6 downlink channel, and decreasing said transmit power regardless of a

7 nominal lower limit of a power control range if the downlink channel has

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8　a quality higher than a specified threshold value at said mobile station.

1　　　16.　The CDMA communication system of claim 15, wherein the

2　base station is further arranged to:

3　　　　receive a command signal from a mobile station requesting the

4　base station to increase the transmit power of a downlink channel, and

5　　　　increase said transmit power of the downlink channel if total

6　transmit power of said downlink channels is lower than a specified

7　threshold value.

1　　　17.　A CDMA communication system comprising:

2　　　　a plurality of mobile stations; and

3　　　　a base station for establishing a plurality of downlink channels to

4　said mobile stations, receiving a command signal from a mobile station

5　requesting the base station to increase the transmit power of a downlink

6　channel, and increasing said transmit power of the downlink channel if

7　total transmit power of said downlink channels is lower than a specified

8　threshold value.

1　　　18.　A CDMA communication system comprising:

2　　　　a plurality of mobile stations; and

3　　　　a base station for establishing a plurality of downlink channels to

4　said mobile stations, receiving a command signal from a mobile station

5　requesting the base station to decrease the transmit power of a downlink

6　channel, decreasing the transmit power of said downlink channel if a

7　hypothetically decremented value of said transmit power is higher than a

8　nominal lower limit of a power control range, decreasing said transmit

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9 power of said downlink channel if said downlink channel has a quality

10 lower than a specified threshold value at said mobile station even when

11 said hypothetically decremented value is lower than said nominal lower

12 limit, and setting said transmit power of said downlink channel equal to

13 said nominal lower limit if said hypothetically decremented value is

14 lower than said nominal lower limit and the quality of said downlink

15 channel at said mobile station is lower than said specified threshold

16 value.

1   19.   The CDMA communication system of claim 18, wherein said

2 base station is arranged to:

3   receive a command signal from said mobile station requesting the

4 base station to increase the transmit power of said downlink channel;

5   increase said transmit power of said downlink channel if a

6 hypothetically incremented value of the transmit power is lower than

7 said nominal upper limit;

8   increase said transmit power if total transmit power of said

9 downlink channels is lower than a specified threshold value even when

10 said hypothetically incremented value is greater than said nominal upper

11 limit; and

12   set the transmit power equal to said nominal upper limit if said

13 hypothetically incremented value is greater than said nominal upper

14 limit and said total transmit power is equal to or higher than said

15 specified threshold value.

1   20.   The CDMA communication system of claim 18, wherein the

2 base station is arranged to:

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3   receiving a quality indicating signal from said mobile station

4   indicating a quality of said downlink channel at said mobile station;

5   determine whether the quality of said downlink channel indicated

6   by said quality indicating signal is higher than said specified threshold

7   value; and

8   decrease said transmit power if said quality is higher than said

9   specified threshold value even when said hypothetically decremented

10   value is lower than said nominal lower limit.

1   21.   The CDMA communication system of claim 18, wherein said

2   quality indicating signal represents a signal to interference ratio of said

3   downlink channel at said mobile station.

1   22.   The CDMA communication system of claim 18, wherein the

2   base station is arranged to decrement said power level by a stepsize value

3   which varies depending on the length of time during which said power

4   level is lower than a predetermined level.

1   23.   The CDMA communication system of claim 18, wherein the

2   base station is arranged to decrement said power level by a stepsize value

3   which varies depending on the length of time during which said power

4   level is lower than a predetermined level.

1   24.   The CDMA communication system of claim 22, wherein the

2   base station is arranged to increment a count value if said power level is

3   lower than said predetermined level and increase said stepsize value

4   when the count value reaches a predetermined value.

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1   25. The CDMA communication system of claim 24, wherein the

2 base station is arranged to increment a count value if said power level is

3 lower than said predetermined level and increase said stepsize value

4 when the count value reaches a predetermined value.

1   26. A CDMA communication system comprising:

2   a plurality of mobile stations; and

3   a base station for establishing a plurality of downlink channels to

4 said mobile stations, receiving a command signal from a mobile station

5 requesting the base station to decrease the transmit power of a downlink

6 channel, decreasing the transmit power of said downlink channel if a

7 hypothetically decremented value of said transmit power is higher than

8 said nominal lower limit, incrementing a count value as long as said

9 hypothetically decremented value is lower than said nominal lower limit,

10 setting the transmit power of said downlink channel to said nominal

11 lower limit if said count value is smaller than a predetermined count

12 value, and decreasing the transmit power of said downlink channel if said

13 count value reaches said predetermined count value.

1   27. The CDMA communication system of claim 26, wherein the

2 base station is arranged to:

3   receive a command signal from said mobile station requesting the

4 base station to increase the transmit power of said downlink channel;

5   increase said transmit power of said downlink channel if a

6 hypothetically incremented value of the transmit power is lower than

7 said nominal upper limit;

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8   increase said transmit power if total transmit power of said

9   downlink channels is lower than a specified threshold value even when

10   said hypothetically incremented value is greater than said nominal upper

11   limit; and

12   set the transmit power equal to said nominal upper limit if said

13   hypothetically incremented value is greater than said nominal upper

14   limit and said total transmit power is equal to or higher than said

15   specified threshold value.

1   28.   A CDMA communication system comprising:

2   a plurality of mobile stations; and

3   a base station for establishing a plurality of downlink channels to

4   said mobile stations, receiving, at said base station, a command signal

5   from said mobile station requesting the base station to increase the

6   transmit power of said downlink channel, increasing said transmit power

7   of said downlink channel if a hypothetically incremented value of the

8   transmit power is lower than a nominal upper limit of a power control

9   range, increasing said transmit power if total transmit power of said

10   downlink channels is lower than a specified threshold value even when

11   said hypothetically incremented value is greater than said nominal upper

12   limit, and setting said transmit power equal to said nominal upper limit if

13   said hypothetically incremented value is greater than said nominal upper

14   limit and said total transmit power is equal to or higher than said

15   specified threshold value.